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The specifics of surgical education in Medieval Europe

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This article reviews the problems of the status of surgery in Medieval Europe and the model of surgical education in Italy and France. If in Italy the chirurgery was one of the university-taught disciplines, in France during the 12th century, The College of St. Cosmas was established, which prepared highly qualified surgeons. Although this college was in constant confrontation with the University of Paris, some subjects however, such as anatomy for example, were taught in both educational facilities. The surgeons were unable to obtain university education not only due to lack of understanding the Latin language by the majority of them, but also due to the necessity of having practical training, which the medical faculties did not allot sufficient amount of attention. Familiarization with the sources, repudiates the historiographical myth about the ignorance of medieval surgeons: there were more treatises written on surgery than on therapy and pharmacology.

Keywords: *chirurgery, history, The College of St. Cosmas, University of Padua, Ambroise Pare*

There is a traditional view that in the Middle Ages surgery was the stepdaughter of medicine. In Europe, the Hippocratic Oath is considered the first document that set out the distinct and inferior position that surgery held in relation to medicine. The oath contains the following: "I will not cut for stone, even for patients in whom the disease is manifest; I will leave this operation to be performed by practitioners, specialists in this art." The oath was taken only by physicians engaged in internal diseases. If a surgeons' vow existed in the ancient world, its text has not survived to this day. A sharp division between medicine and surgery was already apparent in antiquity and stretches through the entire Middle Ages. Researchers note several reasons for this. First of all, surgery was in its infancy. Its applications were extremely limited and mortality resulting from surgery was high. Death could occur not only as a result of the operation itself, but from shock stemming from the pain or postoperative complications. Surgery was performed only in extreme cases, which is confirmed by the famous aphorism of Hippocrates: "Those diseases which medicines do not cure, iron cures; those which iron cannot cure, fire cures; and those which fire cannot cure, are to be reckoned wholly incurable." In addition,

medical historians emphasize that surgeons were often illiterate, their capabilities were limited to amputations, resetting dislocations, bloodletting, removal of abscesses and pulling patients' teeth. The contemptuous moniker of "barbers" continued to be applied to surgeons through the Renaissance: Surgical training was not conducted at an academic level, rather it was conducted more at the level of a workshop, and surgeons were sometimes included in the one shop with barbers. "Surgery was not taught in the vast majority of medieval universities and it was not listed among medical disciplines. It was conducted by bathhouse attendants, barbers and surgeons, who had no university education and were not recognized as physicians." However, this prevailing cliché does not explain much in the history of medicine. The Renaissance became a time when surgery not only expanded its professional application and scope, but also sought its place among the sciences.

Consider the first work on the history of French surgery, penned by Francois Quesnay.¹ [2] He believed that the sharp division between medicine and surgery only arose in the era of university education and was largely due to the

¹ Francois Quesnay (1694-1774) is known to us now as a philosopher "physiocrat." He was a professional surgeon, however, and author of the first work on the history of French surgery.

influence of the church: medicine was studied by student-clerics who, because of the constraints imposed by their status, could not treat women and "shameful" diseases, and could not visit the sick at home – they could only give advice and their medical practice belonged to the sphere of the speculative. [2, p. 16-17]

This version is often linked with the idea that the church "forbade bloodshed" ("Ecclesia abhorret a sanguine"), which was particularly emphasized by Tours Cathedral's resolution of 1169. Consequently, the clergy could not perform any surgical operations. [3] However, the cathedral's resolution only bans the clergy from participating in military hostilities. Moreover, as has been shown by the modern researcher D. Jacquard, the medieval system of values never considered blood as "unclean." Further still, it was a component of the humoral theory, or the theory of "four fluids," produced in antiquity and which became the theoretical foundation of the whole of medieval medicine. [4, p. 18-19]

Another version has been put forward by modern medical historians. It is associated with a particular medical position held in a number of academic disciplines. If theology and law were purely intellectual disciplines requiring no physical know-how or hands-on ability, then medicine, and especially surgery, required such skills. Here we find a point of divergence. Consider the work of French philosopher Hugo of Saint-Victor (1096-1141) with his rigid classification of sciences and crafts into intellectual and practical spheres, which automatically assigns surgery to the "inferior crafts." Hugo lists seven "mechanical arts": weaving, weapons making, trade, agriculture, hunting, theater and medicine. But having becoming a university discipline, medicine received an intellectual status, connected with the basics of natural science [5], while surgery took a different path. Universities rejected surgery as belonging to the sphere of pure manual labor, and it was firmly entrenched with the status of a "mechanical art." The famous French surgeon Guy de Chauliac (1290-1368) looked to categorize it and settled on the word *sciēce*. However, he stipulated that this was arguable and that in some cases, surgery could be called an art (*ars*) and that Aristotle defined its place among the mechanical arts (*ars mechanica*). That is why Chauliac applied

the term *mechanici* to his colleagues. [6, p. 43]

Either way, the doctor's profession was structured as to require a university education. A doctor was considered a person who had graduated from a university and received a diploma. A surgical education was divided between workshops and schools. It was merged with related specialties and last but not least, thanks to this situation, medical scientists' attitude towards surgeons remained dismissive. The relationship between surgeons and physicians in the Middle Ages somewhat resembled the modern relationship between doctors and paramedical staff.

Nevertheless, there exist factual reasons that stop us from resigning surgery to the status of a kind of "medical backwater," disenfranchised and completely despised. This is particularly clear with the example of Italy. It clearly set the tone both in surgery and in medicine in general in this era.

Literature covering the history of medieval universities usually focuses on the similarity of university structures in different cities and countries: the same three "higher faculties," the same "Faculty of Liberal Arts," and finally, the same Latin, created a single conceptual field for intellectuals throughout Europe. Yet each university had its own character, and the medical faculties' teaching programs differed as did the quality of the professors, obviously: it is difficult to explain otherwise the well-known phenomenon of "nomad" students – scholars who moved from one university to another. In this respect, with the problem considered here the following is clear.

It is obviously untrue that surgery was not taught in universities. It was taught – at least theoretically. Among the books that were mandatory for studying medicine at Paris and Padua was a treatise on surgery by Byzantine Paul of Aegina [3, p. 77], and subsequently the writings of Arab surgeons, primarily Abulcasis.

Italian surgeons received university education in Bologna and Padua. In Italian universities surgery was taught by: William of Saliceto in the 13th century, who while working at the University of Bologna, wrote the work "Chirurgia" (1268) in Latin. This tradition continued unbroken in the future: Berengaria Giacomo da Carpi (1460-1530) was a professor of surgery at Bologna, and before him Mondino de Luzzi read lectures on the discipline.

[7] The number of treatises on surgery continued to increase. N. Sireysi emphasizes that in itself the idea of writing a book specifically on surgery can be considered an innovation in 12th-13th century Western medicine and therefore the authors always preceded such editions with a justification of why such a book was needed. However, they believed that it was necessary not only to disseminate the ancient texts and especially Arab surgical texts, but also to refer to their own clinical experience. [8] Its worth noting the fact that Latin-language works on surgery found an audience in itself refutes the idea of universal illiteracy of the craft's exponents. Among the first treatises on this specialization, which served as a model for physicians over the following centuries, were the works of surgeons of the Bologna school, Bruno Lombard (1252) and William of Saliceto (1275).

In 14th-15th centuries in Europe there appeared a huge number of treatises on surgery: Lanfranc and J. Vigo in Italy, Guy de Chauliac and Henri de Mondeville in France, Hieronymus Brunschwig and Hans von Gersdorff in Germany and many others. [9] Many more surgical works were released than purely medical ones. Surgeons, even if they hadn't studied in higher academic university circles, were proud of their craft, insisting that in the most difficult cases one should not resort to therapy and pharmacology, but namely surgery. Henri de Mondeville, surgeon to St. Louis and Philip the Fair, stressed that the superiority of surgery over medicine is demonstrated firstly by the fact that it could treat the most severe diseases and secondly, that surgery was able to cure illnesses that could not be treated naturally or with drugs. [10] If doctors made a mistake, their error was not visible, and if they killed the patient their being at fault was not immediately noticeable. A surgeon's error was immediately visible and it could neither be justified nor be blamed on someone else. For de Mondeville, the specific nature of surgery was that responsibility was "at their fingertips."

The surgeon-scientists constantly fought for the betterment of their status, which, in particular, focused on the struggle for improving the status of their manual skills. Italian surgeon Lanfranc of Milan wrote: "Oh Lord, why is there so great difference between a surgeon and a physician? God the Creator and Jesus worked with their

hands and did not study the pulse and urine." [11, p. 53] The founder of modern anatomy, Andreas Vesalius, spoke on this theme even more bitingly: "And so in the course of time the technique of curing was so wretchedly torn apart that the doctors, prostituting themselves under the names of "Physicians," appropriated to themselves simply the prescription of drugs and diets for unusual affections; but the rest of medicine they relegated to those whom they call 'Chirugiens' and deem as if they were servants . . . Therefore tyros in the art should be encouraged in all the methods, and, if it please the gods, scorning the whisperings of the 'physicians,' they should apply their hands likewise to curing in whatever manner the nature of the art and reason really demand, as the Greeks did. This they should do lest they turn mutilated medicine to the destruction of the common life of man. And they must be encouraged in this more diligently in proportion as we see today that the men who are more thoroughly grounded in the art abstain from surgery as from the plague. They are afraid that they will be traduced by the fanatics of the medical profession before the unlettered populace as 'barbers.' They also fear that afterwards they may not get half the profit, honor, or reputation in the eyes of either the unlearned mob or the leaders." [12, c. 9–11] It is important that surgeons are clearly aware that their profession is an equal branch of medicine. The professions of doctor and surgeon were strictly segregated, but high-class surgeons such as Henri de Mondeville and Guy de Chauliac were strongly opposed to such a separation. "It would be most beneficial for students who at least know the general principles of medicine and understand the terminology of the art," wrote de Mondeville for public lectures on surgery that he gave in Paris and on medicine that he gave in Montpellier. [13] In the classic work "Chirurgia magna," de Chauliac stressed that "It is impossible to be a good surgeon, if unfamiliar with the basics and the general rules of medicine, and it is impossible for anyone to be a good doctor if he is completely unfamiliar with surgery." [10, p. 1]

So, Italian universities, apparently, from the very beginning or at least from very early on, included surgery among the subjects taught. In France, this challenge saw a different solution. There appeared the only educational institution

preparing higher qualified surgeons and presenting serious competition to the medical faculty. It was Saints Cosmas and Damian College (Collège Saint-Côme) in Paris. In this institution, as was the case at the medical faculty, they "wore robes, read lectures and conferred degrees." [6, p. 123] Russian medical historian S. Kovner asserts that "for admission to the college ..." French surgeons "had to know Latin, attend the university's courses in philosophy and medicine; engage in surgery for two years and receive a Masters in Philosophy." [14]

It is surprising that to this day this school still has not received much attention from historians. Apparently, this is due to the fact that the study of the college's history is virtually impossible at the present stage, since almost no sources covering its work have survived. The well-studied royal ordinances and statutes governing the status of surgeons and their relationship with the medical faculty have become bywords of the medical world. But the most important question remains unanswered: What, in fact, was taught there and how was the process of teaching conducted.

There remains the controversial question on the period of the establishment of the Saints Cosmas and Damian College. Most medical historians believe that Parisian surgeons were successors of barbers and not doctors. The rights and status of the new institution were regulated by city law and royal ordinances. According to one version, Paris' surgeons college, given its heavenly patrons Saints Cosmas and Damian, existed since 1033. According to the second version, it was founded around 1260 by Jean Petar (1238-1315), a physician from Saint-Louis, and the first known document confirming its status is the Charter of Saint-Louis from 1268. [6, p. 123] J. Malgaigne, however, emphasizes that the earliest surviving copy of the charter only relates to 1379 and raises serious doubts, at the very least, because it does not mention Saint-Louis. [6] As a result, J. Malgaigne considers the first reliable document to be the ordinance from 1301, which prohibited people from practicing surgery if they had not passed a special exam. This ordinance applies term "craft" (*métier*) to surgery, whereas the term "art" (*ars*) for medicine is more typical.

In 1311, the ordinance of Philip the Fair was issued. It required measures to be taken to combat

charlatan surgeons, as surgery in Paris was being engaged in by "... robbers, counterfeiters, voyeurs, thieves ..." According to the ordinance, the surgeons had to take an exam to receive the right to conduct professional activities. The exam was conducted by two royal surgeons and a prévôt from the college. Surgeons also had to take an oath (*serment*), obtain a license and place a sign in their window. It should be noted that the ordinance allows for the possibility of women practicing surgery (*chirurgiens ou chirurgiennes*). During this period, we do not find any mention of the existence of a surgeons' college at any educational institution. It is assumed that the training took the form found typically at a "guild," ie. the student accompanied a master during his visits to the sick (for free, members of the college helped the poor, who were unable to get to the hospital). Perhaps training took place in the Hotel-Dieu. After training, the student would have to pass an exam, take an oath and, after a ceremony in the chapel of the Hotel-Dieu, he would receive a license. To receive a license the novice had to pay 12 gold crowns, separately pay for a master's hat and gloves, as well as provide a dinner to the college. However, the question concerning the educational content remains unanswered. Importantly, in this era de Mondeville proposed a surgical training program, which included both theoretical and practical training, but this program was never put into practice. [4, p. 37–40]

It stands to reason that one of the key questions concerning the college's existence was its coexistence with the medical faculty of the university. Published documents on the history of the medical faculty at the University of Paris confirm that the relationship between the college and the medical faculty, while not trouble-free, was being rather actively developed. The special charter of 1360 prohibited the medical faculty from intervening in the affairs of the college. [10, p. 1] Over the next century the two groups converged, and in 1436 the surgeons declared themselves students of the faculty, although they continued to award a master's degree in their college. They "crossed paths," for example, with anatomical dissection – an indispensable element of training for both specialties. They had to coordinate in this pursuit, due to the scarcity of anatomical material and due to the fact that the faculty forbade surgeons

from performing an autopsy without the presence of doctor of medicine, who interpreted what he saw.

Entering the college required a good knowledge of Latin, as exams were taken in this language. This was confirmed by the statutes of the college, published in 1544. The knowledge of Latin, and hence, the reading of professional literature, distinguished one as belonging to the society of "surgeon-scientists," unlike barbers who may have been illiterate. Latin was needed in order to enable the learning process, which, logically, should combine both theoretical subjects (otherwise Latin would not be needed) and practical training (without which becoming a surgeon would be inconceivable).

The community of barber-surgeons, "low-grade" specialists who were not trained at Saints Cosmas and Damian College, let alone at the medical faculty, had repeatedly raised the legitimate concern of authorities, since the barbers' qualifications often left much to be desired. Furthermore, barbers did not know Latin, which made it almost impossible to create an education system for them under the auspices of the medical faculty or Saints Cosmas and Damian College.

The sphere of activities of barbers, or surgeons "de robe courte," as they were usually called, was regulated by the authorities. By an edict of 1372, barbers had the right to treat bruises, sores, sprains and open wounds, "with the exception of mortal [wounds]." [15, p. 297] It remains unclear who determined the severity of a patient's condition and by what criteria. It is possible that this situation was due not only to the low professional level of barbers, but also due to the tendency to not try to treat the dying. This characteristic of medieval medicine in general was shown in D. Jacquard's research: "In the Middle Ages, the idea of not interfering in hopeless cases is most pronounced in surgical writings." Lanfranc of Milan clearly explained this in his advice to surgeons at the end of the 13th century: "Let him not seek to difficult cases and in no way interfere with the hopeless cases." [16]

Saints Cosmas and Damian College's relationship with the barbers did not evolve particularly well: it aspired to "higher surgery" and with good reason, seeing the barbers as competitors – what's more, with dubious training. As a result, the situation evolved such that the

scope of "higher surgery" narrowed: Lanfranc of Milan even claimed that the treatment of sprains and fractures was beneath their dignity and advised the prescription of therapeutic remedies, which already fell into the domain of physicians from the medical faculty. As a result, "robe longue" surgeons were left with the same surgeries, the outcomes of which were less effective and their interventions often led to lethal outcomes.

At the beginning of the 15th century, surgeons repeatedly lodged complaints with the parliament to ban barbers from carrying out surgery, but these requests were regularly denied. From the beginning of the 16th century, barbers gradually prevailed: they attended the university anatomy course and a special statute mandated that the course be read in French. This fact subtly raised their status and in 1505 the college was referred to as "surgeon-barbers" (*barbiers-chirurgiens*). However apparently, there was a firmly entrenched bad reputation within the field of "scientist" surgeons, and it is possible that this bias (along with a poor knowledge of Latin) prevented the first attempt by 44-year-old Ambroise Pare at passing the exam at Saints Cosmas and Damian College in 1554. [17]

As we can see, we witness a different approach to the status of surgeons and surgery in France and Italy. In Italy, "higher" surgery continued to maintain university status, which, of course, does not preclude the existence of lower-rung surgeons. The medical sphere in France was socially heterogeneous, and social barriers prevented practical conclusions from being drawn from the obvious idea that surgery is an integral part of medical treatment. It is no coincidence that all great surgeons assert this idea in the preface to their works, contributing new arguments – from the theological to the purely down-to-earth. Ambroise Pare paid tribute to this tradition, establishing, not only in his words but in his deeds, new medical frontiers. Surgery secured new bridgeheads (the treatment of gunshot wounds, post-wound infections and obstetrical intervention), and therefore commanded that it be treated with a different attitude. Yet the Paris Medical Faculty held the fort against surgeon-practitioners for more than a century, seriously ceding its place to the universities of Leiden and then Vienna as pioneers of university study of clinical medicine.

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